

**CLASS 157, WHEELWRIGHT MACHINES****SECTION I - CLASS DEFINITION**

This class includes means for assembling wheels not specifically provided for elsewhere.

- (1) Note. Included here (as a residual or generic locus) are devices and processes for machining the tread portion of a rubber tire. (see Subclass References to This Class, below for the specific subclass.)
- (2) Note. Included in this class is a related body of art pertaining to the mechanical treatment of the outer periphery of rubber tire casings. The presence of this body of art in this class is not intended to change the scope of either the class or any subclasses hereunder unless so specifically noted. (see Subclass References to This Class, below for specific subclass.)

**SECTION II - SUBCLASS REFERENCES TO THE CURRENT CLASS**

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 13, as a residual or generic locus for devices and processes for machining the tread portion of a rubber tire, and for a related body of art pertaining to the mechanical treatment of the outer periphery of rubber tire casing.

**SECTION III - REFERENCES TO OTHER CLASSES**

SEE OR SEARCH CLASS:

- 29, Metal Working, subclasses 700+ for miscellaneous assembling apparatus and see the Notes thereto for other assembling.
- 72, Metal Deforming, appropriate subclasses for apparatus which performs a mere plastic metal shaping operation, and does not include assembly.

**SUBCLASSES**

- 1 Devices not elsewhere classifiable for assembling wheels.

- (1) Note. Clamps for holding wooden rims in shape while the spokes are being set up are included, except when accompanied by devices for screwing up the spoke-nipples. Such devices are found in Class 81, Tools, subclass 53 and indented subclasses.

**1.1**

This subclass is indented under the class definition. Devices and methods for setting or removing or for facilitating the setting or removing of a rubber tire from a rim.

- (1) Note. A "rim" is defined as the immediate support for a rubber tire and includes such elements whether integral with or detachable from the wheel.
- (2) Note. This subclass is the collecting place for devices which cause radial motion only of a rubber tire portion, or devices for squeezing the rubber tire circumferentially of its cross-section in connection with the operation of setting or removing the same.
- (3) Note. This subclass is the collecting place for holding devices designed merely to engage a portion of the tire and/or rim, and to maintain a prescribed position of the tire portions relative to each other or of the tire portion relative to the rim as an aid to tire setting or removing by other means. The position in which the tire is held is generally one in which (1) the casing is deformed from its normal cross section, or (2) the tire and rim occupy positions other than fully assembled or fully separated.
- (4) Note. Devices which set or remove a tire supporting rim upon or from the felly of a wheel are excluded and will be found primarily in another subclass. See the Search This Class notes below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 1, for devices which set or remove a tire supporting rim upon or from the felly of a wheel.

## SEE OR SEARCH CLASS:

- 29, Metal Working, subclass 221.5 for devices for applying or removing air valve stems to or from rims, subclass 235 for devices for placing and removing resilient articles in general.
- 81, Tools, subclass 15.3 for casing-supported devices for retaining a tire casing in spread condition.
- 144, Woodworking, subclasses 306+ for a device for holding a wheel or wheel portion.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 110+ and 394+ as the generic place for tirebuilding processes and apparatus.

- 1.11** This subclass is indented under subclass 1.1. Devices combined with or convertible to a vehicle carried bracket or support for a tire rim.

## SEE OR SEARCH CLASS:

- 224, Package and Article Carriers, subclasses 42.12+ for vehicle carried tire holders without tire setting or removing features.

- 1.13** This subclass is indented under subclass 1.1. Devices for operating on rubber tires that are circumferentially discontinuous.

- 1.14** This subclass is indented under subclass 1.13. Devices which include means to manipulate or facilitate the manipulation of the end portions of circumferentially extending binding elements associated with the tire.

## SEE OR SEARCH CLASS:

- 140, Wireworking, subclass 93 for devices in general for applying wire and subclasses 111+ for devices for joining wire.

- 1.17** This subclass is indented under subclass 1.1. Devices having means for engaging the tire and/or rim and moving the tire or a portion thereof in a direction normal to the plane of the tire or rim.

- (1) Note. Devices which engage a movable flange to thereby move the tire are included.

- (2) Note. Devices which produce radial motion in addition to axial motion are included.

- 1.2** This subclass is indented under subclass 1.17. Devices wherein the tire engaging means is circumferentially continuous or consists of elements which are distributed with substantially uniform circumferential spacing and simultaneously operated.

## SEE OR SEARCH THIS CLASS, SUBCLASS:

- 1.26+, for devices having circumferentially distributed engaging elements which are individually operated.

- 1.21** This subclass is indented under subclass 1.2. Devices which include means for applying pressure on the periphery of the tire, the pressure being directed toward the axis of rotation to cause the bead or beads to move axially.

- (1) Note. Usually, the tire is of the "tubeless" type and is associated with the rim of a wheel when the pressure is exerted to thereby cause the beads to engage the rim to facilitate inflating the tire with pressure fluid.

## SEE OR SEARCH CLASS:

- 24, Buckles, Buttons, Clasps, etc., subclasses 19+ for devices which exert a circumferential force around bale packages or hose.
- 81, Tools, subclass 64 for wrenches having flexible gripping means which surround the part being turned.

- 1.22** This subclass is indented under subclass 1.17. Devices in which a tire engaging element and the rim have relative movement in concentric paths, which movement effects the axial motion of the tire portion.

- (1) Note. In order to be classified in this subclass the indicated manner of use must be disclosed, and (1) the tire or rim engaging portion must be particularly designed to operate in this fashion, or (2) a supporting arrangement particularly designed to cause or permit movement

of the device peripherally of the rim must be provided.

**1.24** This subclass is indented under subclass 1.22. Devices which have a base or stand for supporting the tire and rim when detached from the vehicle.

**1.26** This subclass is indented under subclass 1.17. Devices wherein the engaging members are adapted to engage opposite sides of a tire, or of a tire and rim, and are arranged for movement relative to each other.

- (1) Note. The essence of this subclass is the substantial opposition of the pushing members. Devices, therefore, in which one of the members engages portions of a wheel other than the felly or tire-holding rim are excluded and will be found in subclass 1.17 supra.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 1.2, for devices wherein the opposed engaging members are circumferentially distributed.  
1.22+, for devices wherein one of the opposed engaging members is circumferentially traveling.

**1.28** This subclass is indented under subclass 1.26. Devices wherein both opposing members or parts thereof engage the tire.

- (1) Note. In cases where one of the opposing members engages the rim in addition to the tire and where the enclosure formed by the members embraces the rim rather than the tire, and where the primary function of the rim engagement is provision of an anchor point, the simultaneous tire engagement of said element is regarded as incidental and patent is placed in subclass 1.26.

SEE OR SEARCH CLASS:

- 254, Implements or Apparatus for Applying Pushing or Pulling Force, subclasses 50.1+ for similar devices used as resilient tire casing spreaders and compressors.

**1.3** This subclass is indented under subclass 1.17. Devices consisting of a single lever.

- (1) Note. This subclass is made up primarily of patents wherein the device is a single rigid element. Plural element devices are also included, however, when the relative movement of the parts occurs merely (1) for the purpose of moving the lever elements to change the overall dimensions subsequent to the initial operation of the device in the manner of a lever or pry, or (2) for purposes other than tire setting or removal (e.g., stowage).

**1.33** This subclass is indented under subclass 1.1. Devices which engage and remove or apply, or facilitate the removal or application of, an annular tire retaining element which is mounted on the rim as a barrier for the prevention of relative axial movement between the tire and rim.

- (1) Note. Retaining elements for the purpose of this subclass may include, for example, discontinuous groove-engaging lock rings as well as the retaining portions of rims which are separable in an axial direction.  
(2) Note. Loose flanges having a mere sliding fit on the rim and which are themselves retained in the manner of a tire do not normally furnish subject matter for this subclass unless the device is disclosed as primarily intended for their forcible application or removal.  
(3) Note. Devices which merely shift a flange or tire portion to expose the retainer prior to removal thereof are excluded and will be found in subclasses 1.17+.

**1.35** This subclass is indented under subclass 1.1. Devices having means to engage and distort a circumferentially discontinuous rim in order to (1) contract and/or expand the same, or (2) to offset and/or align the rim end, or both (1) and (2).

## SEE OR SEARCH CLASS:

301, Land Vehicles: Wheels and Axles, subclass 33 for split rims in which the offsetting contracting and/or expanding device is a part thereof intended to be retained in position thereon during normal use of the rim.

**1.36** This subclass is indented under subclass 1.35. Devices having three or more rim-engaging elements.

- (1) Note. In determining the number of elements, those which are rigidly connected together and those which engage on opposite edges or faces of the rim in substantially the same radial plane, as well as those combinations of members which constitute a unitary rim clamping structure are regarded as single elements.

**1.37** This subclass is indented under subclass 1.36. Devices in which two of the contacting elements are connected by a system including a movable link and/or lever for drawing the elements together or separating them, said link or lever having an abutment or hook mounted thereon for applying a force to a portion of the rim incident to movement of said elements and substantially perpendicular to the direction of said movement.

- (1) Note. Devices of the type having arms of substantial length which are designed to project in a radiating fashion are excluded from this subclass and will be found in subclasses 1.38 and 1.41.

**1.38** This subclass is indented under subclass 1.36. Devices provided with at least two arrangements for forcibly moving certain of the rim engaging elements.

## SEE OR SEARCH THIS CLASS, SUB-CLASS:

1.44, for plural force-mechanism devices having less than three rim engaging elements.

**1.39** This subclass is indented under subclass 1.38. Devices in which at least two manually operated controllers for the driving arrangements are present.

**1.4** This subclass is indented under subclass 1.39. Devices in which the force-mechanisms are readily divisible into two categories; i.e., main and subsidiary.

- (1) Note. The subsidiary mechanism is usually of a character different from and/or simpler than the main mechanism and can be operated for its purpose without substantially affecting the operation of the main mechanism. The disclosed purpose for the subsidiary mechanism is frequently the offsetting of the rim ends, while the main mechanism is usually disclosed as operating to expand or contract the rim.

**1.41** This subclass is indented under subclass 1.38. Devices having (1) a plurality of toggle force-mechanisms lying in planes perpendicular to that of a rim being operated on, or (2) a radial or face cam whose axis is perpendicular to the plane of the rim.

## SEE OR SEARCH THIS CLASS, SUB-CLASS:

1.35, for devices having less than three rim engaging elements and operated by a linkage which is movable in a plane perpendicular to the plane of the rim.

**1.42** This subclass is indented under subclass 1.35. Devices in which at least one of the rim-engaging elements consists of two or more circumferentially spaced rim contacting portions which are by appearance distinct, but which are in fact the terminal portions of integrally connected arms, thereby forming a single engaging element as defined for subclass 1.36 in (1) Note thereunder.

- (1) Note. The integral connection between the arms is sufficient for this subclass if the arms are so mounted that relative movement circumferentially of the rim in either direction is precluded when the device is in extended condition ready for use.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
1.36, for devices having similar structure, but in which relative movement between the arms is permitted.
- 1.43** This subclass is indented under subclass 1.35. Devices composed of a linkage designed to operate on the rim in response to actuation of two levers having handle portions for engagement by the hands of the operator.
- 1.44** This subclass is indented under subclass 1.35. Devices provided with at least two driving arrangements for forcibly moving the rim engaging elements.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
1.38+, for plural force-mechanism devices having three or more rim engaging elements.
- 1.45** This subclass is indented under subclass 1.35. Devices wherein the mechanism for moving the rim engaging means includes a screw and nut.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
1.36, for devices of this character having three or more rim-engaging elements.  
1.41, for devices of this character where the screw and nut mechanism actuates an axial toggle.
- 1.46** This subclass is indented under subclass 1.35. Devices wherein the mechanism for moving the rim engaging means includes (1) members having sliding engagement with each other and/or (2) a rack and actuating means therefor (e.g., a pinion, pawls, or the like).
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
1.45, for devices including sliding members which are screw and nut actuated.
- 1.47** This subclass is indented under subclass 1.35. Devices made up of one or more members such as pivoted links and/or levers which are constrained to move in one or more planes substantially normal to the axis of a rim on which the device is operating.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
1.35, for devices having similar linkages not confined to planes normal to the rim axis.  
1.37, 1.38, 1.4, for devices of this character having three or more rim engaging elements.  
1.43, for devices of this character consisting of two levers each having a handle portion for manual actuation thereof.
- 1.48** This subclass is indented under subclass 1.47. Devices composed of two link members pivotally interconnected.
- (1) Note. Devices in which no more than one of the links are extended for use as a manually actuated lever are included.
- (2) Note. In determining the number of elements in the linkage, parts whose primary purpose is to effect clamping engagement with the rim are disregarded.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
1.43, for similar devices comprising two hand levers.
- 1.49** This subclass is indented under subclass 1.47. Devices comprising a single rigid lever member movable relative to the rim and designed to produce relative movement between the rim ends.
- (1) Note. Devices which include elements designed to be clamped to the rim to operate as a part thereof and to which the lever member is pivotally related are included.
- 1.5** This subclass is indented under the class definition. Apparatus for assembling metallic spoked wheels (e.g., "wire" wheels), and/or for holding the felley and hub while truing the wheel.

- SEE OR SEARCH CLASS:  
 29, Metal Working, subclasses 894.33+,  
 for similar methods.  
 144, Woodworking, subclass 288, see note  
 (1).
- 1.55** This subclass is indented under subclass 1.5.  
 Apparatus for securing a spoke to a hub or felly  
 by deforming the spoke, hub, and/or felly.
- 2** Devices for compressing wheel-rims to force  
 fellies in place, etc.
- 3** Devices for guiding and forcing spokes into  
 hubs.
- 4** Supports for holding the hub and guiding the  
 spoke while it is being driven.
- SEE OR SEARCH CLASS:  
 144, Woodworking, subclass 206 for mak-  
 ing a wheel spoke.
- 5** Devices for forcing tires on wheel-rims.
- 7** Trestles on which the wheel is mounted in  
 combination with tanks into which the wheel or  
 wheel-rim can be dipped to cool the tire.
- 8** Removable devices for tightening tires without  
 affecting the construction of the wheel.
- SEE OR SEARCH CLASS:  
 301, Land Vehicles: Wheels and Axles, for  
 devices for the same purpose which  
 form permanent parts of wheels.
- 9** Removable jacks for tightening tires by  
 expanding the fellies against the tire.
- 10** Fellies are expanded by a jack which is  
 clamped to a spoke.
- 11** Presses for forcing tires off of wheel-rims.
- 12** Devices for pulling spokes or spoke-tenons out  
 of hubs.
- SEE OR SEARCH CLASS:  
 254, Implements or Apparatus for Apply-  
 ing Pushing or Pulling Force, espe-  
 cially subclass 18, and indented sub-  
 classes.
- 13** This subclass is indented under the class defini-  
 tion. Apparatus and processes, for treating the  
 outer periphery of a rubber tire casing by cut-  
 ting, punching and/or rasping to produce a  
 desired tread or traction effect in or on said  
 periphery, or to prepare the periphery for tread-  
 ing or retreading.
- (1) Note. This subclass is the locus of art  
 relating to tire treading by a slitting or  
 machining operation (except abrading,  
 for which see Class 451, Abrading)  
 which art (in the absence of this sub-  
 class) would ordinarily be classified in  
 accord with the particular machining.  
 Both apparatus and process are classified  
 here on the basis of the article worked  
 and the functional utility of said working  
 operation.
- (2) Note. Patents classified here as originals  
 should always be cross-referenced in  
 accord with the particular machining dis-  
 closed to other appropriate classes.
- (3) Note. See section III of the class defini-  
 tion of Class 29, Metal Working, for the  
 definition of machining and slitting.
- (4) Note. This subclass does not include cut-  
 ters, slitters or rasps, per se, even when  
 such tools are set forth as applied to the  
 treatment of rubber tires.
- (5) Note. Included in this subclass, because  
 of the general similarity to tire treading  
 and resurfacing, are processes and  
 devices provided for (A) the removal of  
 mold flash from either tire periphery or  
 bead, and (B) the reclamation of material  
 from tires which does not necessitate the  
 destruction of the tire. The disclosure  
 under (B) may be limited to removal  
 solely for the purpose of salvaging or  
 reworking said material but unless the  
 claims are so limited or restricted as to,  
 of necessity, effect the destruction of the  
 tire (so that it may not be regrooved or  
 recapped) classification is proper in this  
 subclass.

**SEE OR SEARCH CLASS:**

- 29, Metal Working, subclasses 76.1+ for rasps or files, and subclasses 402.01+ for the generic locus of processes of repair.
- 69, Leather Manufactures, subclasses 9+ for skiving or splitting devices.
- 82, Turning, appropriate subclasses.
- 83, Cutting, appropriate subclasses.
- 144, Woodworking, subclasses 306+ for a wheel support, generally.
- 451, Abrading, for the treatment of rubber tires by an abrading operation, and see (1) Note above.

**14 WHEEL HOLDING MEANS:**

This subclass is indented under the class definition. Apparatus comprising means for holding at least one component of the wheel (e.g., rim, tire, etc.) in a particular position or orientation either relative to (a) another component of the wheel when the wheel is assembled or disassembled, or (b) a repairing or surfacing tool working on the tire component of the wheel.

**SEE OR SEARCH CLASS:**

- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 414+ for tire-building drums, per se, used with tire-building apparatus.
- 248, Supports, appropriate subclasses for stands or supports of general application.
- 269, Work Holders, appropriate subclasses for work holders of general utility.

**15 Including inflatable wheel gripping element:**

This subclass is indented under subclass 14. Holding means including an enclosed element having at least one flexible wall, a side of the element being forced into gripping contact with the wheel when a fluid is introduced into the element.

**SEE OR SEARCH CLASS:**

- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclass 416 for building drums having an inflatable core.
- 269, Work Holders, subclass 22 for work holders including a fluid-operated, work-engaging, movable diaphragm.

**16 Including relatively movable wheel gripping jaws:**

This subclass is indented under subclass 14. Holding means including two or more jaws movable with respect to each other into gripping contact with the tire.

**SEE OR SEARCH CLASS:**

- 269, Work Holders, subclasses 86+ for work holders having relatively movable work-engaging jaws.

**17 With screw-nut actuating device:**

This subclass is indented under subclass 16. Holding means wherein one of the jaws is moved by a device which includes a threaded cylindrical rod which is either (a) rotated to move a mating threaded rider attached to the jaw along its axis, or (b) is attached to the jaw and is axially shifted by, and relative to, a mating threaded element which is being rotated.

**SEE OR SEARCH CLASS:**

- 269, Work Holders, subclasses 240+ for work holders having relatively movable, work-engaging jaws which are shifted toward or away from each other by a screw-nut actuating device.

**18 With cam or wedge type actuating device:**

This subclass is indented under subclass 16. Holding means wherein one of the jaws is moved by a device which includes either a rotatable camming or shiftable wedging element, a surface of which slides against and moves a cooperating surface on (a) the jaw, or (b) a follower element attached to the jaw when a rotating or shifting force is applied to the element, one of the engaged surfaces having an uneven contour that causes the movement transmitted to the cooperating surface by the element to be in a direction other than that of the element.

**SEE OR SEARCH CLASS:**

- 269, Work Holders, subclasses 229+ for work holders having relatively movable, work-engaging jaws which are shifted toward or away from each other by a cam, eccentric, or wedge-type actuating device.

- 19 Means mounted to swing between locations:**  
This subclass is indented under subclass 14.  
Apparatus wherein the means is supported by structure which allows it to swing from one definite location to another.

SEE OR SEARCH CLASS:

269, Work Holders, subclass 50 and 55+  
for work holders mounted for movement from one position to another with respect to a base or support.

- 20 Means rotates about relatively fixed axis:**  
This subclass is indented under subclass 14.  
Apparatus wherein the means is supported by structure which allows it to rotate about a relatively fixed point.

SEE OR SEARCH CLASS:

269, Work Holders, subclass 50 and 55+  
for work holders mounted for movement with respect to a base or support.

- 21 Adjustable or adaptable for different sizes or shapes:**  
This subclass is indented under subclass 14.  
Holding means wherein the wheel-contacting elements of the means are either (a) selectively usable, or (b) adjustably movable to accommodate different sizes or shapes of the tire or rim components of the wheel.

END